UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,123	12/12/2003	Igor Keller	188122000400	1921

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EXAMINER
FREJD, RUSSELL WARREN

ART UNIT	PAPER NUMBER
2128	

DATE MAILED: 07/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
   Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>*20 April 2006*</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3-6 and 13-49* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3-6 and 13-49* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date *7.19.04*.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

In re Application of: Keller et al.

Examination of Application #10/735,123

1.   Claims 3-6 and 13-49 of application 10/735,123, filed on 12-December-2003, are

presented for examination. Claims 3-6 were elected for examination on 20-April-2006, with new

claims 13-49 added via amendment. The Examiner respectfully notes that non-elected claims 1,

2 and 7-12 are not yet cancelled from the application.

Claim Objections under 37 CFR 1.75(d)(1)

2.   Claims 29 and 30 are objected to under 37 CFR 1.75(d)(1), wherein the claims are

currently dependent from claim 31, creating at least some confusion as whether the claims

should depend from claim 21 instead.

Claim Rejections under 35 U.S.C. § 101

3.   35 U.S.C. 101 reads as follows:
>   Whoever invents or discovers any new and useful process, machine, manufacture, or
>   composition of matter or any new and useful improvement thereof, may obtain a patent therefore,
>   subject to the conditions and requirements of this title.

3.1   Claims 3-6 and 13-49 are rejected under 35 U.S.C. 101 because the claimed invention is

directed to non-statutory subject matter. The invention claims (claim 3 preamble), "*A method of*

determining aggressor-induced delay change in a victim net of stage of an integrated circuit

design."

3.2   MPEP Section 2106(IV)(B)(2)(b)(ii) provides that a statutory computer process is

determined not by how the computer performs the process, but by what the computer does to

achieve a practical application with a useful, concrete and tangible result. For example, a

computer process that simply calculates a mathematical algorithm that models noise is

nonstatutory, while a claimed process for digitally filtering noise employing the mathematical

algorithm is statutory. The long line of cases in this area that are referred to in MPEP Section

2106(IV)(B)(2)(b)(ii) exemplify this requirement, by utilizing in the claim language, terms such as

controlling, executing, changing and removing. In view of the aforementioned requirement and

the interim guidelines for 101 eligibility, the Examiner respectfully contends that the claim

language of independent claims 3, 13, 19, 21, 31, 34 and 40 do not claim a practical application

with a tangible result, that language claiming: in claim 3:

> **providing** (emphasis added) an input and output voltage;
>
> **producing** a model of an interconnect network of the stage;
>
> **determining** nominal delay in the stage;
>
> **providing** a signal transition;
>
> **propagating** a driver model output waveform;
>
> **determining** noisy delay in the stage;
>
> **providing** a signal transition;
>
> **providing** at least one aggressor-induced voltage waveform;
>
> **propagating** a driver model output waveform;
>
> **providing** at least one aggressor-induced voltage waveform; and
>
> **determining** a difference between the delays.

3.3   For at least these reasons, the Examiner respectfully posits that the claims of the present

invention do not meet the criteria for a statutory process. Accordingly, the claims are determined

to be a method of determining aggressor-induced delay change in a victim net of stage of an

integrated circuit design, consisting solely of mathematical operations, converting one set of

numbers into another set of numbers, whereby the method does not manipulate appropriate

subject matter, and thus cannot constitute a statutory process (MPEP Section 2106(IV)(B)(2)(c)).

3.4 The Examiner also posits that the method of the present invention is computer

executable software code, or a program per se, consisting of software instructions that

implement the method of determining aggressor-induced delay change in a victim net of stage of

an integrated circuit design. For at least this reason, the software instructions of the present

invention do not manipulate appropriate subject matter, and thus cannot constitute a statutory

process (MPEP Section 2106(IV)(B)(2)(c)).

3.5 In view of the aforementioned requirement, the Examiner respectfully contends that the

claim language of independent claim 31 does not claim a practical application, that language

claiming a computer readable medium encoded with a data structure representing a current

model of a gate circuit. The medium holding a data structure is determined to recite data

embodied on a computer-readable medium. However, the data does not impart functionality to

either the data as claimed or to the computer. As such, the claimed invention recites non-

functional descriptive material, *i.e.*, mere data. Non-functional descriptive material is merely

carried on the medium, it is not structurally and functionally interrelated to the medium, and

thereby does not manipulate, or execute, appropriate subject matter, and thus cannot constitute

a statutory process (MPEP Section 2106(IV)(B)(2)(c)).

Claim Rejections under 35 U.S.C. § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

In re Application of: Keller et al.

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4.1   Claims 13, 19, 21-23, 27, and 31-33, are rejected under U.S.C. 102(b) as being

anticipated by the article authored by Keller et al., entitled *A Robust Cell-Level Crosstalk Delay*

Change Analysis.

4.2   The article by Keller et al., cited on the 1449 received on 19-July-2004, but not citing a

publication date, discloses: in section 3.1, entitled *ViVo: precharacterized gate current model,*

and Figure 5, each of the limitations of claims 13, 19, 21-23, 27 and 31-33, including: a current

model associating instantaneous input and output voltages and a current source; models of

capacitance between input and output nodes, and an output node and a ground potential; a

model of Miller capacitance; and sensitization for DC simulations, including a 2-D current table

and constant DC voltage values.

Claim Objections

5.   Claims 14-18, 20, 24-26, and 28-30 are objected to as being dependent upon a rejected

base claim, but would be allowable if rewritten in independent form including all of the limitations

of the base claim and any intervening claims.

Allowed Claims

6.   Claims 3-6 and 34-49 are deemed allowable over the prior art of record at this time,

pending resolution of any rejections noted above.

Response Guidelines

7.   A shortened statutory period for response to this action is set to expire **3 (three) months
and 0 (zero) days** from the date of this letter. Failure to respond within the period for response
will cause the application to become abandoned (see MPEP 710.02, 710.02(b)).

7.1   Any response to the Examiner in regard to this non-final action should be

directed to: Russell Frejd, telephone number (571) 272-3779, Monday-Friday
from 0530 to 1400 ET, **or** the examiner's supervisor, Kamini Shah,
telephone number (571) 272-2279. Inquires of a general nature or
relating to the status of this application should be directed to the TC2100
Group Receptionist (571) 272-2100.

mailed to: Commissioner of Patents and Trademarks
P.O. Box 1450, Alexandria, VA 22313-1450

or faxed to: (571) 273-8300

Hand-delivered responses should be brought to the Customer Service Window, Randolph
Building, 401 Dulany Street, Alexandria, VA, 22314.

Date: 24-July-2006   _Russell Frejd_
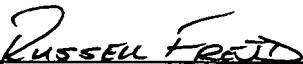
RUSSELL FREJD
PRIMARY EXAMINER